disease by scintigraphy. Vasodilator infusion has already improved scintigraphy results in those unable to exercise well.

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The Simplicity and Safety of Radiologically Placed Gastric Tubes

ENDOSCOPISTS AND, MORE RECENTLY, radiologists have shown that successful gastric intubation, once strictly a surgical procedure, can be done outside the operating room without an incision.

The procedure is done with a fluoroscope while the patient is fully awake. The stomach is inflated with air via a nasogastric tube, which pushes the transverse colon away from the abdominal wall. An appropriate site on the skin surface is prepared and then anesthetized with local anesthesia. For patients in whom a nasogastric tube cannot be passed, the stomach can be inflated through a skinny needle placed percutaneously into the stomach bubble. Under fluoroscopic guidance, a needle is inserted into the gastric lumen through which a guide wire is placed. The needle is removed and the tract is dilated to the desired width (usually 12 F to 16 F). A feeding tube, which usually has some form of anchor, such as a self-retaining pigtail loop, is then inserted. Some prefer to secure the stomach to the abdominal wall using small T-anchors introduced through separate needle punctures, but we have found that unnecessary.

An advantage of radiologic guidance is that ultrasound can be used to locate the spleen or liver should they be near the proposed entry site, and the colon can be quickly filled with air or contrast material if it is difficult to see with the fluoroscope. If or when a jejunal tube is needed, then the G-tube is readily replaced with a longer tube that is fluoroscopically guided into the small bowel. After bowel sounds return, usually within 24 hours, the tube is then ready to be used for feedings. The procedure usually takes under 30 minutes to do, and, if the tube should stop working after the tract matures—usually by two to four weeks—it is easily exchanged in a few minutes over a guide wire on an outpatient basis.

Because of the distended stomach, air can escape into the peritoneal cavity, which is rarely, if ever, of any clinical consequence. Morbidity and mortality data show that fluoroscopically directed feeding tubes can be placed with the same, and perhaps fewer, complications than surgically or endoscopically placed tubes. That, with the added benefits of no anesthesia or operating room charges, makes the radiologically placed feeding tube an attractive alternative for patients in need of enteral nutrition.

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